

WHAT IS CLAIMED IS:

1 *Sub*
2 *Q7* 1. A nucleic acid array, wherein each coordinate of the array contains
3 a single nucleic acid species, which nucleic acid species has a sequence of a Xenopus
4 embryonic gene product set forth in Appendix 1, or the complement thereof, or a
5 hybridizable fragment thereof consisting of not less than 20 contiguous nucleotides from
the sequence.

1 2. The nucleic array of claim 1 comprising all of the sequences from
2 Appendix 1.

1 3. The nucleic acid array of claim 1 wherein the nucleic acids are
2 cDNAs.

1 4. The nucleic acid array of claim 1 wherein the nucleic acids are
2 oligonucleotides.

1 5. The nucleic acid array of claim 1, wherein the array is supported
2 on a solid support selected from the group consisting of a glass slide and a silicon chip.
3

4 *Sub*
5 *Q8* 6. An isolated nucleic acid comprising a sequence corresponding to
6 or complementary to a sequence of not less than 20 contiguous nucleotides of any one of
the sequences of Appendix 1.

1 7. The nucleic acid of claim 6 wherein the sequence consists of the
2 sequence of Appendix 1, or the complement thereof.

1 8. The nucleic acid of claim 6 wherein the sequence lacks any
2 homology to a known sequence as set forth in the list in Appendix 1.

1 9. Method for detecting differential expression of embryonic genes,
2 which method comprises:

3 (a) contacting a nucleic acid array comprising one or more genes
4 expressed in embryonic cells but not in mature cells with a sample nucleic acid
5 preparation and a control nucleic acid preparation, wherein the sample nucleic acid
6 preparation and control nucleic acid preparation contain nucleic acids expressed by
7 sample cells and control cells, respectively, and

8 (b) detecting differential hybridization of nucleic acids from
9 sample cells relative to control cells to nucleic acids in the array.

1 10. The method according to claim 9 wherein the sample nucleic acids
2 are mRNAs.

1 11. The method according to claim 9, wherein the sample nucleic acids
2 are cDNAs produced by reverse transcriptase-polymerase chain reaction (RT-PCR).

1 12. The method according to claim 11, wherein the sample nucleic
2 acid preparation and the control nucleic acid preparation are each labeled with different
3 labels.

1 13. The method according to claim 12, wherein the sample nucleic
2 acids are labeled with fluorescent tags.

1 14. The method according to claim 9, wherein the array is supported
2 on a solid support selected from the group consisting of a glass slide and a silicon chip.
3

1 15. The method according to claim 9, wherein the sample cells are at a
2 different developmental point during embryogenesis relative to the control cells.

1 16. The method according to claim 9, wherein the sample cells are
2 located in a different region of an embryo compared to the control cells.

1 17. The method according to claim 9, wherein the sample cells are
2 contacted with an external stimulus and the control cells are contacted with a sham
3 stimulus or no stimulus.

1 18. The method according to claim 17, wherein the cells are contacted
2 with a gene encoding a known gene product.

1 19. The method according to claim 17, wherein the cells are contacted
2 with a gene encoding an unknown gene product.

1 20. The method according to claim 17, wherein the sample cells are
2 contacted with a drug.

1 21. The method according to claim 17, wherein the sample cells are
2 contacted with an environmental toxin.

1 22. The method according to claim 17, wherein the sample cells are
2 irradiated.

1 23. The method according to claim 9, wherein the nucleic acid array
2 contains one or more sequences from Appendix 1.

1 24. Method for detecting defects in development, which method
2 comprises contacting nucleic acids from test cells undergoing development with a nucleic
3 acid array of gene products known to play a fundamental role in the development process,
4 and detecting a difference in expression of a fundamental gene in the sample cells relative
5 to a standard.

1 25. The method according to claim 24, wherein the standard is a
2 standard derived from expression in a normal cell.

1 26. The method according to claim 24, wherein the nucleic acid array
2 comprises one or more sequences as set forth in Appendix 1, or the complement thereof,
or a hybridizable fragment thereof.

1 27. The method according to claim 24, wherein a difference in gene
2 expression in test cells relative to normal cells is indicative of a developmental defect.